HARRIS

AM-90

Medium Wave Modulation Monitor

- **Exclusive neon bar graph display for high monitoring accuracy**
- **Exclusive RMS sideband power monitoring provides accurate loudness measurement**
- **Digitally programmable selectable peak flasher yields high monitoring accuracy**
- **Standard carrier and modulation alarms minimize dead air time**
- **Self calibration circuit maintains factory alignment accuracy**

The new Harris AM-90 Modulation Monitor is designed for continuous monitoring of the amplitude modulation envelope in the 450 KHz to 30 MHz frequency range. This sensitive instrument assures strict compliance with FCC rules and regulations. The AM-90 Modulation Monitor is an all solid-state self-contained rack mounted unit consisting of compact mainframe and two printed circuit cards. All controls are front panel mounted. Connections to a remote unit, primary power and RF inputs are mounted on the rear of the chassis.

NEON BAR GRAPH DISPLAY

A first in innovative technology is represented by the AM-90's highly accurate neon bar display for measuring carrier and modulation levels. The flat panel indicator displays two separate bar graphs, each containing 201 elements for ½% resolution. Display segments are printed on 0.002-inch center spacing. At normal viewing distances, the glow blends into a continuous, precisely controlled bar length. This unique analog display with no moving parts offers distinct advantages over previous designs incorporating electromechanical meters. Now the station operator has a choice of meter ballistics, including FCC specified or peak reading. An additional metering function can be selected which gives the RMS value of the absolute value of modulation. A rotary meter amplifier switch provides up to 50 dB of gain to the bar graph display. This switch, with amplification selectable in 10 dB increments, enables the operator to measure low amplitude modulation or transmitter signal-to-noise ratio with a built-in 20 Hz to 20 KHz noise filter.

FLASHERS

Two fixed flashers are factory adjusted to +125% & -100% modulation, allowing constant monitoring of modulation levels. These indicators are triggered whenever the monitored RF signal modulation exceeds the preset value. A separate digitally programmable flasher offers positive or negative polarity selection with a usable range of 1% modulation to +200% or -100% modulation. Flasher accuracy is ±1% at 1 KHz.

CARRIER AND MODULATION ALARMS

Carrier and modulation alarms illuminate when carrier amplitude drops below 50% of the preset level, or when modulation remains under 10% for 10 seconds.

GENERAL

No tuning is required at the monitor. The AM-90 Modulation Monitor incorporates an expanded scale carrier level meter for accurate carrier level deviation measurements. The wideband linear phase filter design is capable of passing 20 Hz to 20 KHz with no measurable overshoot from square wave modulation. The AM-90 features three separate high fidelity audio outputs: 1) electronically balanced, +10 dBm (into 600 ohms); 2) 5-volt RMS instrumentation output (into 10k ohms); 3) auxiliary audio output amplified through the metering circuit. The AM-90 Modulation Monitor incorporates high RF input impedance to facilitate connection of other instruments to the same RF source. A mode indicator provides non-FCC prescribed meter operation (RMS or peak modulation). An optional remote meter panel duplicates most of these functions for measurements at distant locations.

SPECIFICATIONS

FREQUENCY RANGE: 450 KHz to 30 MHz

RF INPUT: 1.0 Vrms to 10.0 Vrms

POWER INPUT: 115 Vac ±15%, 50-60 Hz (230 Vac ±15% available)

MODULATION INDICATION

DISPLAY METER: 0% to 100% on negative peaks.
0% to 140% on positive peaks.

FLASHER FREQUENCY RESPONSE: +0%, -5%; 20 Hz to 20 KHz

FLASHER ACCURACY: ±1% at 1 KHz

AUDIO TEST OUTPUTS

FREQUENCY RESPONSE: +0 dB, -0.5 dB; 20 Hz to 20 KHz

DISTORTION: 0.15% maximum at 99% modulation, 1 KHz audio, 450 KHz to 1.8 MHz carrier; 0.50% maximum, 1.8 MHz to 30 MHz carrier

SIGNAL-TO-NOISE: 75 dB minimum referenced to 100% sine wave modulation

ELECTRONICALLY BALANCED OUTPUT

OUTPUT IMPEDANCE: 75 ohms balanced

OUTPUT LEVEL: +10 dBm into 600 ohms at 100% sine wave modulation

INSTRUMENT OUTPUT

OUTPUT IMPEDANCE: 100 ohms (unbalanced)

OUTPUT LEVEL: 5 volts RMS into 10k ohms at 100% sine wave modulation

MODULATION CALIBRATION: Built-in calibration, digitally synthesized RF source, +125% and -100% modulation, RMS value 111% ±0.1%

REMOTE OUTPUT: For meter and flasher indications at another location, use Harris' remote meter panel 994-8487-001

GENERAL

SIZE: 19" long x 3.5" high x 13.5" deep (48 cm x 9 cm x 34 cm). Mounts in standard relay rack

WEIGHT: 15 pounds (6.82 kg). Export Packed: apx. 20 pounds (9 kg)

AMBIENT TEMPERATURE RANGE: -20°C to +55°C (-4°F to 131°F)

HUMIDITY: 95% maximum (non-condensing)

ALTITUDE: 10,000 feet maximum (3048 meters)

HARRIS MAINTAINS A POLICY OF CONTINUOUS IMPROVEMENT OF ITS EQUIPMENT AND THEREFORE RESERVES THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE.

ORDERING INFORMATION

AM-90 Solid-State AM Modulation Monitor	**994-8424-001**
AM-90 Remote Meter Panel	**994-8487-001**

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ADV. 571C PTD. IN U.S.A.